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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/881,974 | 06/15/2001 | Michiaki Iha | P/1071-1380 | 7656 |

2352 7590 12/18/2002

OSTROLENK FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403

EXAMINER

BLACKWELL RUDASIL, GWENDOLYN A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1775

DATE MAILED: 12/18/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,974

Applicant(s)

IHA, MICHIAKI

Examiner

Gwendolyn A. Blackwell-Rudasill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 15-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election *without* traverse of Group I claims 1-14 in Paper No. 9 is acknowledged. Claims 15-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Application Publication no. 08-236936, JP '936.

JP '936 disclose a multilayer laminated glass ceramic circuit board with small contraction of the substrate wherein the glass components of the insulating layers are different types of glass. The laminated glass ceramic circuit board comprises two or more layers with each having a glass component with glass transition temperatures that differ by 80°C or more, (sections 0009- 0010). Contraction of the laminated circuit board is kept to a minimum by layering the insulating layers containing different glass ceramic components with different glass transition temperatures, meeting the requirements of claims 1-2 and 5, (sections 0011-0014). The glass component consists of a low melting point glass ceramic, meeting the requirements of claim 7, (section

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0024). At least two kinds of glass ceramic serve as the insulating layers, (section 0029). The glass transition temperature of the first glass is 740°C and the temperature for the second glass is 600°C, meeting the requirements of claim 4, (sections 0039-0044).

In addition, JP '936 disclose that as long as the contraction stress is eased at the time of baking the insulating layers together, the higher temperature glass can be in any position, meeting the requirements of claim 3, (section 0079). The content of glass in the first glass containing layer is about 70% while the glass in the second glass layer is about 50%, with the glass content of both layers having to be between 50 and 90 wt%, meeting the requirements of claims 8-14, (sections 0037-0043).

While JP '936 does not specifically disclose the physical property limitations of the wettability and the contact angle, those properties would be inherently present in the prior art. JP '936 disclose a glass ceramic circuit board wherein the laminated layers of the circuit board contain at least two different glass components which help to reduce the shrinkage of the laminated board by dispersing the shrinkage stresses generated in the glass ceramic layers during baking. By the components and configuration, the laminated circuit board would have decreased warpage due to the reduction in shrinkage, thereby demonstrating that the glass ceramic layers have increased wettability relative to the layers that each layer comes into contact and therefore decreased contact angles.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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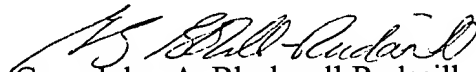
United States Patent no. 5,827,605, disclose a multilayered ceramic substrate that has two different thermal expansion layers wherein each layer is made of a different glass.

United States Patent no. 6,159,322, disclose a ceramic package with a ceramic green sheet composed of a glass powder with a photosensitive paste including a glass frit formed on the green sheet. The glass compositions in each are different.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn A. Blackwell-Rudasill whose telephone number is (703) 305-9741. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Gwendolyn A. Blackwell-Rudasill
Examiner
Art Unit 1775

gbr
December 11, 2002


DEBORAH JONES
SUPERVISORY PATENT EXAMINER